

ABSTRACT OF THE INVENTION

A method and control processor are disclosed for executing a set of control tasks defining dynamic model-based interactive control of an industrial process wherein two sets of executable program code are executed according to a multi-tiered program execution priority scheme. The control processor includes an embedded control task that is periodically executed to carry out computations in accordance with a process control model. The output of the computations include setpoint values that are distributed to relevant control blocks executed in the control processor. The embedded control task is performed at a relatively low execution priority status within the control processor.

The control processor also includes a set of control blocks. The set of control blocks are executed at a relatively high execution priority status within the control processor. The set of control blocks include, for example, a set of regulatory control blocks that are responsible for transmitting control signals to controlled elements of the industrial process and for receiving industrial process status data from process variable transmitters that sense particular process operation parameters (e.g., temperature, pressure, mass flow, etc.). The set of control blocks, in a particular embodiment of the invention also include supervisory control blocks that are responsible for providing setpoints and performing support tasks with regard to the operation of the control process including managing the transfer of data between the control processor and a communicatively linked workstation.

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